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The areas of (1) facilities planning and programming, and (2) facility financing are examined with regard to their potential for improved educational innovation. In the first area, the report deals with the ways in which local facilities planning can be improved through both local action and increased leadership by the Ohio Department of Education. In the second area, the report deals with the present state program for school buildings in Ohio, and ways in which that program may be improved. Following a description of the current buildings situation, needs for state action are discussed. This is done by considering the Ohio Department of Education's objectives and identifying any gaps that exist between these objectives and current performance in the school facilities area. Evaluations are presented of both short-run and long-run alternatives to school facility financing programs. (FS)

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CONDENSED TASK REPORT

on

PROGRAMS TO FINANCE OHIO'S SCHOOL FACILITIES

to

OHIO DEPARTMENT OF EDUCATION

November, 1968

by

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FOREWORD

This report is the result of editing and reducing one of a series of Task Reports prepared by the staff of Battelle Memorial Institute, Columbus Laboratories, for the Ohio Department of Education under a contract research project entitled **PLANNING TO MEET EDUCATIONAL NEEDS IN OHIO SCHOOLS.** Funds for the project were made available under a Title III, ESEA grant from the U.S. Office of Education to the Ohio Department of Education.

This condensed version of a Battelle Task Report was prepared to present the essentials of Battelle's findings as briefly as possible without loss of content or continuity in order to facilitate dissemination of the research findings to a wider audience.

Battelle has assessed educational needs in vocational education and technical training, school facilities, paraprofessionals and supportive assistants, data processing, educational technology, library services, and pupil transportation, each of these being the subject of a research Task.

Eight reports were prepared by Battelle as a result of these studies: seven Task Reports and one Summary Report. The Task Reports represent research studies aimed at the seven subjects mentioned above. The recommendations and conclusions stated in the Task Reports do not reflect full consideration of the educational system as a whole. The Summary Report considers the Task Reports collectively and seeks to relate the results of the Task studies to the educational system as a whole.

The reader is thereby offered two views, one of a specialized nature through a Task Report and one of an integrative nature through the Summary Report. The two views will have much in common, but will occasionally reflect differences arising out of the different context in which the studies were viewed. Accordingly, the reader may wish to study both the Summary Report and the related Task Report on a given subject.

This report is a Condensed Task Report. It carries the essential impact of the Task Report from which it was taken.

Dissemination of the material contained herein is the responsibility of the Ohio Department of Education. Requests for copies with designation of the report(s) desired, may be directed to Dr. Russell A. Working, Division of Research, Planning and Development, 71 East State Street, Room 205, Columbus, Ohio 43215.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
FRAMEWORK FOR ANALYSIS	1
Basic Questions	1
Long-Run and Short-Run Viewpoints	2
Organization of Report	2
THE CURRENT SCHOOL BUILDING SITUATION	3
The Demand for School Buildings	3
Projected Enrollment	3
Obsolescence/Replacement	4
The Supply of School Buildings	5
Characteristics of the Permanent-Building Stock	5
The Sources of Building Funds	6
The State Buildings Program	7
Administrative Procedures for the Current Program	8
NEEDS: THE GAP BETWEEN CURRENT PERFORMANCE AND OBJECTIVES	12
Objectives	13
Needs in Relation to Objectives	14
The User's Viewpoint	14
Needs in Facility Financing	15
Needs in Facility Planning	17
MEETING NEEDS IN THE SHORT RUN	17
Financial Assistance Required Under the Current Program	18
Short-Run Alternatives to School Facility Financing	23
Alternative 1: Eliminate State Aid for Facilities	23
Evaluation of Alternative 1	25
Alternative 2: Raise Local Repayments	25
Increase Payback Rate to 1 Mill or More	25
Extend Payback Years	26
Charge Interest for Full Repayment	26
Alternative 3: Utilize Future Bonding Capacity	27
Evaluation of Alternatives 2 and 3	28
Short-Run Alternatives for School Facility Planning	29
Results of Survey on a School Facilities Resource Center	30
Battelle's Recommendations	32
MEETING NEEDS IN THE LONG RUN	33
Alternative 1: Inclusion of School Facility Financing in the Present Foundation Program	34
Evaluation of Alternative 1	35

TABLE OF CONTENTS
(Continued)

	Page
Alternative 2: Inclusion of School Facilities Financing Through a School Foundation Program of an Equal Effort-Equal Result Formula	36
Evaluation of Alternative 2	37
Alternative 3: County-Wide Tax Base	37
Evaluation of Alternative 3	38
CONCLUSION	38

PROGRAMS TO FINANCE OHIO'S SCHOOL FACILITIES

INTRODUCTION

School facilities constitute one of the key elements of the educational process. While buildings and equipment alone cannot educate, inadequate or ill-designed facilities can sharply limit innovation in teaching methods and curriculum. In addition, school facilities cost money – lots of money –; money that could otherwise be used for instructional materials and to pay teachers and administrators. Thus, facilities play an important role in (1) making possible (or preventing) desirable innovation in education and (2) using funds that, otherwise, could be used for other purposes. These facts mean that all who are concerned with education must be concerned that facilities adequately serve educational needs while not, through poor planning or financing, unnecessarily siphoning away resources vitally needed for other educational purposes. For this reason, when the Ohio Department of Education (ODE) turned to Battelle Memorial Institute for assistance in fulfilling its obligations under Title III of the Elementary and Secondary Education Act of 1965, as amended, it considered facilities planning as a critical element of the overall job of encouraging innovation in education. For the same reason, Battelle accepted the facilities assignment on the underlying assumptions that potentials for improved educational innovation existed in the areas of (1) facilities planning and programming, (2) facility financing, and (3) facilities design. This report focuses upon the first and second areas of the problem – work on the third having been deferred until time and funding permit. In the first area, the report deals with the ways in which local facilities planning can be improved through both local action and an increased leadership role for the Ohio Department of Education. In the second area the report deals with the present State program for school buildings and ways in which that program could be improved.

FRAMEWORK FOR ANALYSIS

Basic Questions

This study aims at answering two basic questions:

(1) What are Ohio's school facility needs?

(2) How can these needs be met?

As in the other parts of Battelle's work for the Ohio Department of Education, these questions were answered from a systems-analysis viewpoint. In accordance with this viewpoint, the school facilities program was studied as one part, strongly interconnected with other parts, of the overall educational system of the State of Ohio. In this context, needs are defined as any gap that exists between a system's current performance and its objectives.

Long-Run and Short-Run Viewpoints

In this systems context, the development of alternatives for meeting needs cannot proceed in a vacuum. As a practical matter the options open to the ODE will be constrained by available resources and by political and institutional factors. To prescribe how needs can be met presumes an understanding of what can be done within the constraints of the Ohio educational system. Determining the nature of these constraints is difficult as such a determination depends on what time horizon is being used. In the long run, many alternatives can be implemented which in the short run would be impractical.

Many valid arguments exist for both the long-run and the short-run approaches. Unless the long-run view is taken, it can be argued that inadequate patchwork solutions will be proposed for complex and deep-seated problems. This argument is particularly important in the present context as the staff of the Board of Education has to work directly with legislators and local officials, all of whom are confronted with immediate pressing problems.* Under this circumstance, it can be argued that a research organization such as Battelle can be most useful to the State by taking the longer view, thereby helping to counteract the built-in necessity for the Department's staff to concentrate on the pressing problems of the moment.

By contrast, an extremely important argument favors taking a short-run approach. If recommendations are limited to the long view, they may be unresponsive to the legitimate and pressing short-run requirements of the Board, and thus prove less useful to it.

This study seeks to avoid the problem by separate consideration of both the long run and short run. Consequently, from these two time perspectives, two approaches were developed. For the short run we assumed that no major changes would be made in the structure of the current building program. Under this assumption, we sought to (1) estimate the funds that will be required to implement a reasonable program, (2) evaluate potential changes in the State's administrative or planning role, and (3) evaluate several modifications of the facility-financing program. In taking the longer view, we dropped the presumption in favor of the present state program. In this portion of the research, we considered how the current program could be improved from the standpoint of the ODE's objectives, if current resource and political constraints were to be relaxed.

Organization of Report

Consistent with the framework of analysis presented here, the remainder of the report is divided into four major parts. The first part considers the current buildings situation. The second part discusses the needs for state action. This is done by considering the ODE's objectives and identifying any gaps that exist between these objectives and current performance in the school/facilities area. Finally, the last two parts evaluate alternative ways of meeting these needs from the short-run and long-run views.

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*As one well-known economist once put it, "Legislators and officials are typically busy and harried men...there is a constant preoccupation with the problems that are immediately pressing, and little stimulus to take thought as to whether proffered solutions are likely to prove lasting ones. There is especially little urge to go hunting for problems which are not yet felt as such, but which may prove troublesome in the distant future."--Jacob Viner, "The Short View and the Long in Economic Policy", Presidential Address to the American Economic Association in 1940.

THE CURRENT SCHOOL BUILDING SITUATION

This section provides an overview of the current and projected school buildings situation. First, it covers the demand for school buildings, both current and anticipated as a result of enrollment increases, population shifts, and replacement requirements. Then, it considers the supply of school buildings from the current stock and the sources of building funds which can contribute to additions to the current stock. These sources are local funds, federal funds, and funds from the State Buildings Program.

The Demand for School Buildings

Projected Enrollment

Battelle has developed a methodology that can be utilized readily to forecast enrollment. This methodology is comparable to that used by many of the larger school districts in Ohio. It seeks to predict the future enrollment of any given grade by determining the number in a preceding grade and applying a grade-progression ratio. That ratio reflects the rate at which individuals in a preceding grade will not be in a subsequent grade by virtue of death, accident, or dropping out of school. In addition, the method seeks to reflect migration – the movement of pupils into and out of a school district. This method has been used satisfactorily to provide fairly reliable short-term enrollment predictions on the national and state levels. A first attempt in this study has been made to apply this method to individual school districts, as well as to the state as a whole.

Our forecasts for Ohio indicate that enrollment in elementary grades (K through 8) will actually decline from the current (1968) level of 1,505 thousand to a level of 1,387 thousand in 1975. This indicates that the enrollment level in elementary schools will decline by about 118,000 pupils. The situation at the high school level is quite different. Our projections indicate that high school enrollment in Ohio will rise from 661 thousand in 1968 to 738 thousand in 1975, a 12 percent increase. The reason for this sharp difference in enrollment change is that the postwar birth spurt is now being reflected in high schools whereas the elementary grade enrollment reflects a declining nationwide birth rate. The trends projected are compatible with the projections prepared by the United States Office of Education. *

The impact of this change in enrollment characteristics is substantial. The most important impact is the increasing demand being placed upon school districts to provide high school and junior high school facilities. To some degree, this demand is being met by the utilization of former elementary facilities for high school purposes. Thus, if the state could be considered as a single unit, there would be little need for new elementary buildings except as replacements for obsolete or badly located buildings.

Providing satisfactory buildings is not, however, merely a question of providing a classroom for each student somewhere in the State. Ohio's education system is administered on a school district basis, not on a State basis. The relatively mild increases in enrollment projected on a statewide basis are not uniformly reflected in all school

*Office of Education, Projections of Educational Statistics, 1976-77, Washington, D.C., Government Printing Office, 1968. The Office of Education estimates indicate that public K-8 enrollment will move from 31.1 million in 1966 to 30.5 million in 1976, while 9-12 enrollment will increase during the same period from 11.9 million to 15.2 million.

districts. In fact, our projections lead to expectations of considerable variation in enrollment changes among districts. At the same time that many rural areas of the state will continue to show population out-migration and a decrease in elementary enrollments, certain new suburban jurisdictions will show striking enrollment increases. Thus, even though there might be enough total building capacity in Ohio to house all Ohio students, those buildings will frequently be in the wrong location. Unused capacity in a declining area can exist at the same time that suburban schools are overcrowded.

As part of the effort to analyze future needs for the State's building program, enrollment forecasts have been made for individual school districts. Due to the difficulty of handling the combined effects of intercounty and intracounty migration patterns, these district projections are somewhat less reliable than the state projections. Despite these difficulties it is clear that some suburban jurisdictions in Ohio will continue to grow at a rather fantastic rate while certain other jurisdictions will be growing very little. This, of course, creates a strong demand for facilities in those areas that are enjoying the substantial growth, even though demand may not be increasing so sharply on an overall State level.

Obsolescence/Replacement

A second source of demand for school facilities arises from desires to replace existing facilities. Such a demand could be generated in several ways. First, the existing school buildings may be in the wrong place within the school district. To some degree this problem can be met by bussing. The extent to which bussing is desirable depends largely on the trade-offs between transportation and construction costs. Second, major building requirements can occur due to policy shifts. In rural areas, policy shifts frequently result from consolidation. For example, two 200-pupil high schools may provide all the facilitires required for 400 high school students, but, a district seeking to enjoy the economies and broader curriculum available with a 400-pupil high school will find itself dissatisfied with both of the existing 200-pupil high schools.

Another category of requirements of this type can follow from desires in urban school districts to promote integration, or at least a different socioeconomic or ethnic mix of pupils, by locating school buildings in such a way that they do not reflect but rather tend to overlap existing housing-segregation patterns. Third, some school buildings may need to be replaced simply because they are obsolescent. This potential exists particularly in areas that are placing emphasis on innovations in curriculum and using new technology in the teaching process. Language labs, team teaching, expanded vocational education programs, and twentieth-century science programs all place requirements upon school facilities which older buildings may be unable to meet. While some of these shortfalls can be tolerated, those who administer such programs naturally prefer new school buildings incorporating the latest innovations. Finally, some school buildings in Ohio are considered unsatisfactory because they are structurally unsound, too small, or because some combination of these factors causes high maintenance and instructional costs, and educationally unsatisfactory conditions.

The Supply of School Buildings

Characteristics of the Permanent-Building Stock

Unfortunately, data are not readily available in Ohio (or in most other states) on the characteristics of the current inventory of school buildings within individual school districts. Perhaps the most comprehensive information is that acquired by the Federal Government through a survey conducted largely for civil defense purposes in 1964. This survey was designed to develop information about major characteristics of school buildings in each of the states. While the statistics are potentially subject to a great deal of error in a variety of areas, it is worthwhile, in order to provide some indication of the status of buildings in Ohio at that time, to relate some of the information discovered in this survey.* The data presented in this survey indicated that a substantial crowding problem existed in Ohio. According to traditional educational standards, the number of students in an elementary school would not exceed 30 per classroom and many educational authorities prefer a much smaller figure. For secondary education, the same authorities tend to use a figure of 25 pupils per classroom. Judged on this basis, in 1964, many Ohio schools were generally well off, for some 332,000 students were housed in elementary school plants having less than 25 pupils per classroom. However, another 377,000 students were housed in elementary plants that were crowded, having more than 30 students per classroom. At the secondary level, the situation was similar: 195,000 students were housed in secondary classrooms having less than 25 students, whereas 229,000 students were housed in secondary plants having more than 30 students. From combined elementary and secondary school plants, 152,000 students were housed in rooms with less than 25 students and only 41,000 students in rooms with more than 30. The national average of students per room in 1964-65 was estimated by the Office of Education to be 27 students per classroom, and Ohio's figure was also estimated to be 27.

The Office of Education also developed estimates of the number of classrooms required to relieve varying presumed levels of overcrowding. According to the federal statistics, if Ohio had wished to meet a standard of 30 pupils per classroom in that year for both elementary and secondary schools, it would have had to provide an additional 2,200 classrooms. Even at a conservative figure of $20,000 per classroom, this would mean total expenditures of something over $40 million. When local estimates of overcrowding were substituted for this statistical estimate, the classroom requirements were raised to 3,500 classrooms, indicating expenditures on the order of $70 million. Shifting to a standard of 25 elementary pupils per room and 20 secondary pupils per room, some 15,100 classrooms would have been required at an expenditure of about $300 million. Such a level of expenditure would be on the order of $150 per pupil, or roughly 1/3 the expenditures per pupil in Ohio in that year. These figures certainly indicate that the potential of school building programs to absorb funds is extremely high. It would be possible, no doubt, by the construction of school buildings to absorb a significant portion of the funds available for education in Ohio. However, clearly, this would not be optimal policy from the standpoint of the state.

In terms of building condition, the federal statistics indicated that some 23.6 percent of the instructional rooms in Ohio needed minor repairs and, more significantly,

*The survey is reported in a variety of sources; the estimates used here were those presented to the Subcommittee on Education, of the Committee on Education and Labor, House of Representatives, 89th Congress, First Session, 1965, in hearings called School Construction, 1965.

some 9.7 percent of the rooms were considered to need modernization or rehabilitation. Such an estimate, while obviously implying a great deal of needed construction, was below the federal average of 15.1 percent of the rooms requiring major modernization or rehabilitation. If the Federal statistics can be believed, in the 1964-65 school year some 41,000 Ohio pupils operated in buildings where water pressure and supply at outlets in buildings did not meet local or state health requirements. Perhaps more important, according to this federal information, almost 5,000 pupils or 0.2 percent of all Ohio students were operating in buildings where no water was piped into the buildings at all, and, in fact, some 1,200 students were operating in buildings that still use outdoor privies. Hot water was unavailable at most handwashing lavatories in buildings serving some 5 percent of the Ohio student population. Other structural deficiencies indicated by this survey showed that of 83,200 instructional rooms in public-school plants, as estimated by the Office of Education, some 800 rooms, or about 1 percent, were built before 1920 and were combustible structures, and another 100 were built after 1920 and were combustible structures. The total of rooms constructed before 1920, most of which were noncombustible, was 15,600 rooms, or almost 20 percent of all Ohio schools in use in 1964-65.

Ohio compared favorably, however, to the nation on the question of instructional rooms which were a nonpermanent building or in off-site facilities. This tends to reflect the fact that Ohio's population growth has been below that of many other states. The federal data also provide some interesting information on the relationship among different types of school districts within the State of Ohio. According to this information, some 27.8 percent of public school pupils were in school plants with more than 30 pupils per instructional room. However, in urban areas the figure jumped to 44.5 percent, while in suburban areas the figure was below the state average at 23.6 percent and, in the areas outside standard metropolitan statistical areas, the percentage dropped to 17.2 percent.

A series of reports compiled by the Ohio Department of Education tends to support the general notion that the supply of school buildings in Ohio is, by most standards, well short of total school building demand. In this study, school districts that might qualify for state aid for facilities were asked to indicate the number of their classrooms which are considered inadequate. These statistics are reported in the subsequent section on meeting short-run needs.

Another important source of indications of the State of Ohio's school building supply are the determinations made by Ohio superintendents in filing building reports to the State Department of Education. These estimates indicate that over the past several years the buildings situation, if anything, has gotten slightly worse. According to these data in the 1967-68 school year, 2,559 rooms were needed to relieve overcrowding. This represents an increase of 359 rooms over the 2,200 needed according to the 1964-65 survey. In addition, in 1967-68 there were over 47,000 students, as compared to 41,000 in 1964-65, being housed in unsatisfactory classrooms.

The Sources of Building Funds

The primary source of funds for school construction in Ohio is the revenue generated within school districts. The State building program and Federal assistance form only a tiny portion of total funds available for building purposes and State Foundation payments are used only for operating costs. School building in Ohio is normally financed through bond issues that are later serviced by the funds available from debt levies. On

January 1, 1967, Ohio's school districts had outstanding bonded indebtedness of $1,238 million. During 1967, Ohio school districts issued approximately $129 million of bonds and another $75 million in notes. Also during 1967, $90 million of bonds and $39 million of the notes were retired, leaving outstanding on December 31, 1967, $1.3+ billion in bonded indebtedness. By comparison, the State program providing on the order of $8 million a year is only a minor component of school construction activity within the State.

The availability of local funds for building and construction depends upon several factors, not the least of which is the willingness of the electorate to vote these funds. However, this willingness is limited by a series of requirements. One of these is the requirement that if the ratio of bonded indebtedness to assessed valuation is to exceed 6 percent, the Ohio State Board of Education must approve the proposed bond issue. This review is used primarily as an incentive to school district reorganization by preventing the issuance of additional debt by districts that, in the opinion of the ODE, ought to be consolidated with other districts. The most significant limitation on local autonomy for our purposes is the requirement that the ratio of bonded indebtedness to assessed valuation not exceed 9 percent. This requirement sometimes creates circumstances under which school buildings are clearly needed and clearly desired by the local officials and voters who are willing to pay for them but who cannot do so because of the 9 percent indebtedness limit. The state school buildings program described below was made available to meet this need.

Some federal funds can be used for school construction, primarily those made available for vocational education and as federal assistance to "federally impacted" areas – areas that have a significant number of their pupils sent to them as a result of federal activity, such as military bases.

The State Buildings Program

The present State building program was adopted in 1957, largely in response to difficulties caused by the fact that school district bonded indebtedness cannot exceed 9 percent of assessed valuation. In the 1950's, school enrollments were expanding rapidly throughout the State, thus creating sharply increased needs for new school buildings. In many school districts, the limitation on bonded indebtedness meant that the districts had no legal way to raise the necessary funds for new buildings. The immediate need for new facilities meant that pay-as-you-go type financing was not practicable, but the limits on bonding precluded using borrowing. Even if bonding at higher levels had been practicable there would, no doubt, have been difficulties as a result of (1) voter resistance to levies to pay off large debts and (2) the higher interest rates that follow lower bond ratings sometimes associated with high debt-to-assessed-valuation ratios.

Ohio responded to this situation by commissioning a study by Robert Heller Associates which canvassed the need for new buildings in Ohio school districts, and the capacity of local districts to meet those needs from local taxes and bonds. This study indicated a sizable gap between needs and reasonable estimates of resources, and recommended that the state adopt a program to bridge this gap. Ohio, like many other states, met the challenge by a program confined to those districts which were hemmed in by the limitations on bonded debt.

This Ohio program differs from the approaches taken to school building financing in some other states. Ohio does not provide in any way for facilities within its state foundation program – some other states do make provision in the foundation program for

facilities. Ohio does not provide building assistance to districts that have unused bonding capacity; some other states provide broader programs of building assistance. This approach generally follows Ohio's fiscal pattern of a heavier reliance on locally raised revenue than the average state.

Chapter 3318 of the Ohio Revised Code provides detailed procedures for the administration of the state building assistance program. In summary, these procedures provide for (1) initial application for state funds by a school district, (2) conditional approval of the application, (3) local bond approvals to exhaust bonding capabilities, (4) contracting for construction, (5) state and local payment of construction costs, and (6) repayment to the state of the proceeds of a mandatory one-half mill levy. These repayments cover only a fraction of the State's investment, even if no interest is assumed on the State's investment. The following section contains a detailed description of how the present program is administered.

Administrative Procedures for the Current Program. The cycle of school building assistance begins when the Superintendent of Public Instruction announces that applications for building assistance are being accepted. This step takes place only after the legislature has made funds available specifically for the building program. There is no provision for the ODE to raise funds directly by borrowing for this program – funds can come only from general state borrowing or from regular state tax revenues. Potential applicant districts are furnished with an Application Form, currently Form 454-1, with which to apply.

The form of this application follows the calculations required to establish eligibility for assistance under Chapter 3318 of the Code. The applicant district is asked to calculate its total bonding capability under the 9 percent limitation, available local funds, and federal funds. This amount is subtracted from the estimated cost of the desired school buildings to produce the amount of state assistance required if the buildings are to be constructed.

The second page of the current application form is used for forecasts of enrollment by grade. Major changes in projected enrollment are supposed to be explained by material submitted with the application. Background data on present school tax rates, total tax rates for all purposes, and breakdowns of the school tax rate are also a part of the application form. The applicant district is also asked to estimate the number of satisfactory academic classrooms and special rooms, and to indicate the number of these types of rooms which are evaluated as unsatisfactory. The applicant district then provides an estimate of additional rooms needed and details of the proposed project to build them. This supporting material is supposed to include not only cost estimates but also a justification of how the proposed project will improve the level of the educational program.

All applications are reviewed by the School Buildings Section of the ODE. The review process consists of both a desk review and an on-site survey by one of the professionals of the School Buildings Section.* As of October, 1968, the Section had three employees who did these surveys in addition to the other work involved in the administration of the buildings program. During a survey, the examiner usually talks to the superintendent of the school district, and sometimes to members of the school board and principals.

*During this study, a Battelle staff member accompanied examiners on two such surveys. The cooperation of the School Buildings Section in permitting this direct observation of their work is gratefully acknowledged. The following observations are based upon information obtained during these on-site reviews.

The examiner checks to determine whether changes have taken place in the financial information indicated in the district's application. He discusses both the district's enrollment projections and the proposed building project. Frequently the examiner will make suggestions about the proposed project to the local officials involved.

During his visit, the member of the School Building Section also collects the following information:

(1) The enrollment by grades and rooms for each building as of the date of the examiner's visit

(2) The number of new homes under construction or completed and unoccupied as of the day of visitation and the areas or subdivision in which the majority of the new homes exist

(3) A sketch of the floor plan of each building showing each floor and the location of each room, including storage space, offices, clinics, workrooms, toilet facilities, closets, and any additions and the year of the additions

(4) A list of the existing school buildings containing the size of the building site, the year the school was originally built, and the years of additions to the building

(5) A map showing the school district boundaries, the location of existing school buildings, and the new school sites or additions to present sites if they need to be considered as part of the project

(6) A list of the name of each new school site, size of each site, cost per acre, and the distance from the site of water and sewage lines and gas and electricity at each site.

The examiner normally tours all existing facilities, proposed sites, and any areas of major home construction. He is usually accompanied by the local superintendent and, sometimes, other local school officials. During this tour, the examiner checks each room in each building and enters his evaluation upon previously prepared survey sheets (Form 454-5A).

This process is intended to, and in our opinion does, provide the School Building Section with verification or revision of the estimates of need and enrollment provided by the local district in its application form. The uniform survey formats and the close interaction of staff members within the building section tend to ensure that the on-site reviews in each school district provide relatively uniform results, regardless of which examiner performs the on-site review process. *

Having revised, if necessary, the information shown on the application forms, the Building Section then establishes priorities among the applications, which invariably request greater assistance in total than the state has been willing to provide. The current priorities system is established by Form 454-4. Basically, the priorities system accords highest priority to the district with the greatest percentage (not number) of improperly housed students estimated for the target year.

*Although these surveys put heavy demands upon the time of School Building Section staff members, they are clearly essential to a meanintful review of applications for State assistance.

The Buildings Section enters its estimate of capacity of existing buildings as developed from the worksheets described earlier. Under this procedure a classroom is counted either as usable or as unusable; no intermediate gradings are available. Thus, a classroom in a school considered to be structurally inadequate is counted as zero, as is a classroom which will not hold 30 elementary or 25 secondary students. The estimate of capacity expressed in the capacity (number of students) of usable facilities thus represents one of the critical determinations in the review process.

The enrollment projections from the district's application, as modified by the School Building Section's review, are entered. Because the enrollment figures and the capacity estimates both relate to the same year (generally September 1, 5 years from the deadline for receiving a particular round of applications), * the estimate of improperly housed pupils can be derived by subtracting capacity from estimated enrollment composed of high and elementary pupils separately identified. Estimates of building needs for the improperly housed pupils are then recorded. These estimates reflect actual building concepts of the local district, as modified by the School Building Section's review process. This means that the costs estimated on a per-pupil basis vary sharply among school districts by virtue of (1) differences in regional building costs within Ohio, (2) differences in building plans including whether additions or new schools are being constructed, the extent to which new special-purpose rooms are included in the cost estimate, and whether or not the district already owns the land on which it intends to build.

From this estimate of the amount required to fulfill building needs there is subtracted the amount which can be paid for by local funds. This is calculated, roughly, as the amount of bonding capacity (in the year the estimate is made) which has not been used by the district. The remainder reflects the estimate of state funds needed. The amount of the state funds needed, however, does not enter into the calculation of priorities. Instead, that calculation is based upon a determination of the number of students who would be unhoused assuming all available local funds and bonding capacity were utilized. In other words, this calculation is intended to answer the question, "If the state provided no assistance to this school district, how many students in the year for which the calculation is made would be without adequate classrooms?". The resulting estimate of unhoused pupils can be compared to the estimated total enrollment to produce the projected enrollment expected to be improperly housed if the state does not provide assistance.

The proposition underlying the priorities system is the higher the percentage of improperly housed students, the greater is the district's need for state assistance. The priority system is used because under the existing and past level of funds available for this program, some districts which are theoretically eligible for assistance cannot receive it. Thus, some method is required to determine which districts are to share the limited funds available.

The State Board applies a few criteria in addition to the priorities system. Under current guidance, a district will not receive assistance despite a high priority rating except as the State Board is convinced that "the proposed project conforms to sound educational practice, that it is in keeping with the orderly process of school district reorganization and consolidation, and that the actual enrollment is, or the projected enrollment in each such district will be, 500 students in grades 9-12 inclusive". Exceptions, under the State policy, can be authorized to the high school-size criterion "in those districts where topography, sparsity of population, and other factors make a high school of such size impracticable". The 500-student cut-off point reflects a condition found in the legislation making appropriations for this program.

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*A shorter time period was used in the 1968 priorities determination.

The State Board grants conditional approvals to the school districts that are selected to receive assistance. Normally, this selection follows the priority orderings determined by the School Building Section. These conditional approvals, which specify the project involved and the cost, are approved by the Controlling Board (an overall state fiscal agent). Following Controlling Board approval, the Superintendent of Public Instruction notifies the school districts concerned. These districts must accept the approval and the electors of the school district must vote the required bond issue and tax levy within 120 days or the approval lapses. The districts must achieve a favorable vote on (1) raising their bonded indebtedness to within $5,000 of 9 percent of assessed value and (2) vote an additional one-half mill levy for a period of 23 years or until the state is repaid, whichever comes earlier. *

When the election results have been certified by the County Board of Elections, the school district must pass a resolution authorizing the President and Clerk to enter into a contract with the State Board of Education for the purchase of classroom facilities. The Ohio Department of Education prepares the necessary contracts and submits them to the local board for approval. The contract includes an estimate of the total cost of the project, the estimated local contribution, and the estimate of state funds required to complete the project. The contract also stipulates that local funds will be expended first and that state funds will be used only as needed.

The School Building Section is heavily involved in subsequent steps of the contracting and building process. It has authority to participate in (or review) the development of plans and specifications, the award of construction contracts, the development of specifications for loose equipment, the supervision of the project, and, in the audit of the entire project, to ensure that local funds are exhausted before any state funds are applied to the project.

Funds for the building program come from both appropriations by the legislature and repayment by local school districts through the mandatory one-half mill levy. To date, appropriations of $81.0 million have been made for the present program as indicated below:

Year	Amount Appropriated
1957	$10 million
1959	$10 million
1961	None
1963	$10 million
1965	$51 million
1967	None

In addition to these appropriated funds, repayments of slightly over $3 million have been made to the State as proceeds of the one-half mill levy. These repayments, currently running at about $700,000 per year, can be expected to increase every year as a result of (1) increasing assessed valuation in some of the districts and (2) more districts participating in the program.

Overall, it is clear that the demands for State assistance in the past have exceeded the sums which the State has made available to meet those demands. Every study of

*Under special circumstances of a bonded indebtedness already very close to 9 percent, or less than 4-mill debt levy outside the 10-mill limitation, certain provisions apply. These rare cases are provided for in Chapter 3318 but, because of their rarity, are not discussed here.

building needs in Ohio has reached this conclusion – ours is no exception. A study by a consulting firm in 1956 indicated that state aid needed through the 1960-61 school year amounted to $49.5 million.* The State aid available for construction during this period amounted to less than half of the amount found to be needed. A study conducted by the Department of Education itself in 1963 indicated over $100 million of unmet need. An updating of the same survey prepared by the Department in 1966, covering needs through 1971, indicated a required level of state appropriations of $189.8 million.** When the updated study was prepared, the Department was working with available funds which were less than 20 percent of this amount. In the period ending May 15, 1968, the Ohio Department of Education received applications for assistance which, after review, called for the appropriation of over $51 million of State funds under circumstances where less than half this amount was available. Our discussions with superintendents and with the staff of the School Building Section confirm that the applications received tend to understate the funds that would be used if the buildings program were funded to cover all potential applications. The erratic pattern of appropriations for the program has probably also discouraged application, in addition to complicating program administration.

The recipients of assistance under the state program tend to fall into two significant categories: rapidly growing suburban districts and poor rural districts. In either case the program tends, for reasons which will be discussed in connection with the priorities system, to serve only smaller school districts. The suburban districts become eligible through a typical pattern of the rapid influx of new homes into a formerly sparsely populated semirural area. The existing tax base does not provide sufficient assessed valuation to provide bonding capacity for new schools. The situation is aggravated because many of the high-value developments of light industry, warehousing, and shopping centers, when they locate in these school districts at all, may follow rather than precede the influx of children. This creates a situation in which school-age children will simply have no place to go unless schools are built beyond the bonding capacity of the district. In rural areas, the situation differs primarily because the problem is not children who have no place to go to school, but children who have the wrong place to go to school. Schools are considered inadequate because they are too small, too old, inconveniently located, or deteriorating. Frequently more than one of these problems exists in the same district. In rural areas, which do not have significant industry or public-utility property, the bonding capacity is frequently insufficient to build even one new school.

Because funds have not been made available in sufficient quantities to meet the demands of all such districts, some of them simply are doing without the buildings that the criteria applied by the School Building Section would indicate are required for an adequate educational program. Only those districts that need assistance the most, as determined by the priority system, have been getting funds under the state program.

NEEDS: THE GAP BETWEEN CURRENT PERFORMANCE AND OBJECTIVES

The preceding section indicated that, measured by conventional education standards, a significant gap exists between the supply of and demand for school buildings in Ohio. According to the conventional approach, school building needs would be defined as equal

*Robert Heller & Associates, Public School Building Requirements and State Aid Needed (1956).

**Available from the School Buildings Section, ODE.

to the gap between supply and demand. We believe, however, that this conventional definition of needs can be seriously misleading because it fails to consider that the school building program is only one part of the overall educational system. In this study, therefore, needs are defined as any gap that exists between the objectives of Ohio's overall educational system and the current performance of the school buildings part of that system. This approach, as we shall see, produces quite different results from the conventional approach because it recognizes that school buildings are only a part – perhaps not even a major part – of the educational process. As a first step in applying this approach we consider objectives.

Objectives

School building expenditures should be made only to the extent that they contribute to achieving educational objectives at least as much as similar funds spent on other educational programs would contribute to achieving those objectives.

The determination of educational objectives, and the appraisal of how construction can contribute to achieving these objectives, is appropriately a matter for duly constituted educational authorities and the citizens to whom they ultimately report. This report has not sought to make such decisions but, rather, to discover the objectives now considered salient by such authorities, in particular the State Board of Education. The following paragraphs reflect this review and set the framework for the analysis of alternatives which follows.

In any public agency, such as the Ohio State Board of Education, we may distinguish four kinds of objectives. These may be referred to as (1) activity level, (2) efficiency, (3) distributive, and (4) procedural objectives. In the case of activity level, the objective of any public agency is usually to strive for the highest possible level of activity. The Board in its official "Statement of Philosophy" is consistent with this tradition, stating:

> "The mission of education in our country, therefore is to provide for the fullest possible development of the talents and potentialities of our young people in order that they may participate effectively in the cultural, political, social, and economic life of our democracy". *

To provide for the "fullest possible development" it is, of course, necessary to make maximum use of whatever resources are made available. This implies the objective of maximizing efficiency.

If these were the Board's only two objectives, then matters would be very simple. These two objectives are perfectly compatible in the sense that maximizing achievement of one of them in no way conflicts with maximizing achievement of the other. As soon as the Board's distributive and procedural objectives are considered, however, matters become quite a bit more complicated. The most relevant passages in the Board's philosophy on these objectives indicates that the Board has a distributive objective related to achieving equal opportunity, and a procedural objective of allowing local freedom of choice.

Introducing these objectives creates several difficulties. First, potential conflict now exists among objectives. An obvious conflict occurs between the objectives of local freedom of choice and efficiency. This occurs because economies of scale frequently dictate, from the efficiency viewpoint, increased centralization of decision-making authority, thereby eliminating a considerable amount of local autonomy.

*See Ohio State Board of Education, "A Brief History of the State Board of Education of Ohio", 1955-1966, p 15.

Another conflict frequently occurs in practice between the objectives of local freedom of choice and equality of opportunity. This is because differences in educational expenditures per pupil between districts may, depending on which of these two objectives is paramount, be viewed as either satisfactory or unsatisfactory. While from the equalitarian viewpoint these differences mean children in one district will have poorer education than those in another, from the libertarian viewpoint these differences represent effective expressions of free choice by individuals and groups of differing tastes and incomes.

In addition to the difficulties caused by potential conflict among desirable objectives, the stated policies of the Board do not provide the kind of precise and unambiguous formulation of the distributive and procedural objectives with which a systems analyst or economist would prefer to work. Lack of precision in this context is not necessarily undesirable and is probably inevitable.* This follows naturally from the fact that questions of distribution, e.g., questions of who gets what, are inherently political. As public officials, members of the State Board of Education must operate within the political process under pressure from a variety of different interests. In addition, the Board in the short run must operate within constitutional, legislative, and resource constraints. Thus, at any given point in time, the Board's ability to achieve objectives and even its freedom to state objectives relevant to current programs are inevitably constrained by current political realities.

These difficulties are apparent in both the procedural and distribution objectives. The procedural objective indicates the values of local responsibility, but does not resolve the question of appropriate action when local decisions and the State's interests in educational quality diverge. Likewise, the distribution objective calls for an adequate program for all, without specifying whether an equal program is desirable for all. Thus, it is not clear whether the objective is achievement of full or only partial equalization.

Summarizing this discussion, and discounting these constraints for the moment, it seems reasonable to assume that the Board's latent, if not yet realized, objectives are:

(1) To maximize educational achievement through efficient use of available resources, with as much allowance for local autonomy as practically possible

(2) To achieve full equality of educational opportunity for all regardless of race, creed, color, or economic conditions of the area in which they live, with as much allowance for local autonomy as possible.

Needs in Relation to Objectives

As a starting point in identifying needs, an attempt was made to find out how local superintendents, especially those who anticipated the need for State aid, felt about the current school building program. Following this review, the performance of the State's current activities, first in facility financing and then in facility planning, are evaluated in relation to ODE's objectives.

The User's Viewpoint. To determine how the local superintendents felt about the current program, two open-ended questions were included in the questionnaire as follows:

*See H. A. Hovey, The Planning-Programming-Budgeting Approach to Government Decision-Making (Praeger, 1968), Part II, for evidence that this situation exists for all government programs.

(1) What changes would you recommend in the present program for State assistance for school construction?

(2) Battelle Memorial Institute is being asked to recommend what role the State should play in construction, financing, and planning of school facilities. In addition to comments you have made elsewhere in this questionnaire, do you have any suggestions?

These questions were to be answered by districts who believed they might be needing State aid. Of 106 questionnaires that were tallied on these two questions, 86 contained some comment.

As might have been anticipated, many of these superintendents, 38 percent, said the State should provide more money for facilities. In addition, 10 percent said they would like more nonfinancial aid from the State, including such things as more standardized building plans in order to save on architect fees, legal help in arranging for local bond issues, and similar planning services. Somewhat in contradiction to this desire for more planning aid was the desire on the part of 17 percent of the superintendents for less interference from the State in such things as school buildings design at the local level.

The most interesting finding is that 63 percent of the superintendents making comment desired some change in the structure (as opposed to the level and type of aid) in the State facilities aid program. Significant support, 19 percent of the subgroup, exists for increasing the bonded indebtedness limit. Twenty-six percent, the highest percent for any single comment, wanted the formula changed to provide more facilities aid to the poorer districts. Finally, it is worth nothing that 9 percent explicitly suggested making aid for facilities part of the State foundation program.

In general terms we may interpret the questionnaires as revealing a great deal of dissatisfaction with the status quo. This dissatisfaction is revealed in two somewhat contradictory themes. First, there is the major theme of local district dependence on the State. This is revealed most clearly in the strongly expressed desire for more financial aid from the State, with special emphasis placed on the needs of poorer districts. Second, in contrast to this, is the minor theme of desire on the part of local districts to be independent of the State and to be allowed more autonomy. This is expressed directly in the desire for less imposition of State standards. It is revealed indirectly in the strong opposition to existing State limits on local bonding decisions. We may safely conclude from this that the best of all possible worlds, from the local district viewpoint, is to receive a great deal of money from the State with no strings attached.

Needs in Facility Financing. The analysis of needs, although not in complete agreement with the user's viewpoint, leads to the conclusion that user dissatisfaction with the status quo is justified to a significant extent.

The current State program for school facility financing falls seriously short of achieving both the Board's objectives, efficiency and equalization. In fact, the program is structured in a way that precludes it from achieving both of these objectives at the same time. The extent to which the different objectives are achieved varies significantly with the level of funding. A fully responsive or "loose" funding policy tends toward economic inefficiency, while a "tight" under-funding policy tends to produce inequity.

In order for the State aid program to achieve fully its objective of efficiency, the program should provide local districts with incentives to (1) minimize costs consistent with effectiveness and (2) avoid overspending in the assisted category in relationship to other categories which do not receive as much assistance. These criteria are both violated by the current State program under the condition of fully responsive funding. Under this condition, the program provides 100 percent financing for all improvements beyond the point at which (1) local bonding capacity is exhausted and (2) the repayment potential of one-half mill for 23 years has also been exhausted. As a result, a school district acting with economic rationality should attempt to cover as large a percentage of its total cost through State program as it can. Under these circumstances it has considerable incentive to include a wide variety of equipment expenditures, additional site acquisitions, and construction features permitting later additions to buildings in the project being aided.

In addition, because construction cost is 100 percent defrayed by the State while incremental maintenance cost is 100 percent defrayed by the school district, there is a considerable incentive to substitute capital for operating costs beyond the point at which such substitutions would appear economical. A school board deciding between an operating levy to carry high maintenance costs of old buildings and a bond issue and debt levy to replace those buildings is likely to arrive at an economically defensive decision when the local taxpayers would bear the cost (or even the same percentage of the cost) regardless of whether more maintenance or more construction is chosen. However, if the construction is, in effect, 100 percent State financed, while the maintenance of old buildings is 100 percent locally financed, the school board is likely to err in the direction of overconstruction – other things being equal.

As we have seen, however, the State program since its inception has been operating under a very tight funding policy. Funds have not been available to meet anywhere near all the requests made by all the districts. In part, this tight funding policy was, no doubt, motivated by a desire to avoid the overspending-type inefficiencies just discussed. Unfortunately, this method of avoiding inefficiency on the overspending side is likely to lead to equally undesirable inefficiency on the underspending side.* This is because districts denied capital outlay funds may be forced into uneconomical expenditures on building maintenance and repair.

A tight funding policy also has a highly inequitable impact. Those districts that require State aid but, due to the tight funding policy, do not receive aid, are singled out and made to suffer the major burden of inadequate school facilities. As indicated above, the districts most likely to require aid, and hence, suffer this burden fall into two categories – rapidly growing suburban districts and poor rural districts. In connection with the poor rural district denied assistance for lack of State funds, the current program obviously represents a significant deviation from the Board's objective of achieving equal opportunity for all youth regardless of the economic condition of the area in which they live. Thus, there is justification for the frequent superintendent's comment in favor of more aid to the poorer districts.

Ironically, under the current program, some of the wealthier suburban areas, the rapidly growing ones, suffer burdens along with the poor districts. Their burdens are twofold. Like the poor districts, if they are denied funds, they can't build adequate facilities. Unlike the poor districts, even when they receive funds there is a good chance

*There has been, according to some superintendents' responses to Battelle's questionnaire, a tendency in this direction in past building program administration.

that they will be denied, due to built-in protection of the current program against gold-plating, the opportunities to build as elaborate a facility as they want and would be willing to and are able to pay for. Thus, these districts are being deprived of free choice. This, to the extent that it could be avoided, represents another deviation between the current program and the Board's objectives.

Needs in Facility Planning. Because school buildings represent the largest capital outlay for education, it is reasonable to assume that adequate planning is a prerequisite to the achievement of maximum efficiency.

During this study, Battelle submitted a questionnaire to local officials to determine building needs that might require financing under the State program. This activity and discussions with superintendents provided an opportunity to appraise the status of planning for school buildings within some of Ohio's smaller school districts. It should be noted that the Battelle questionnaire was answered primarily by those school districts that might be in need of assistance from the State and, thus, for the reasons discussed above, the school districts that might be expected to have better planning procedures tended to be excluded. On the whole, the researchers were appalled by the state of school building planning within Ohio's smaller districts. One would expect that each school district would have considered its future enrollments and, on the basis of these enrollments and current building situations, develop plans or at least theories of what should be appropriate building plans for the next 5 or 10 years in the district. Such activity had taken place in only a minority of districts and, in general, the status of school facilities planning was so poor that the responses to the Battelle questionnaire in many cases must have provided a framework for one of the few attempts at school facilities planning. These observations indicate a need for improved school-building-planning procedures in such districts. One solution – expanding the potential State role in school facilities planning – and the reaction of certain superintendents to it are discussed in the subsequent section on meeting short-run needs.

MEETING NEEDS IN THE SHORT RUN

This section discusses how the needs of the State school facility program might be met in the short run. In response to the ODE's request, an estimate is provided of the funds that would be required to implement the State's facility-financing program through 1974, on the assumption that the program continues to exist in its current form. As discussed in the preceding section, however, the current state buildings program does not completely satisfy ODE's objectives, regardless of the level of funding. For that reason, this section also discusses and evaluates several alternatives to the current program in the areas of both planning and financing.

In evaluating alternatives to the current program it is assumed that those political constraints that have prevailed in the recent past will continue to prevail in the near future. For that reason, the alternatives presented in this section are evaluated primarily in terms of their potential for improving efficiency and only secondarily in relation to their contribution toward equalization. The next section on meeting needs in the long run evaluates alternatives in a different light, assuming that current political constraints will, over time, be relaxed.

Financial Assistance Required Under the Current Program

To develop estimates of the funds potentially required under the current State building program, Battelle undertook an elaborate analysis of enrollment increases, classroom needs, and construction costs. In performing this analysis, previously reported data on enrollments and inadequate buildings were combined with superintendents' estimates to produce judgmental estimates of the funds that could be used in the building program.

Before these estimates are discussed it is important to understand their limitations. These can best be understood by a critical step-by-step review of Battelle's estimating process.

(1) Enrollment Projections: Battelle projected enrollment for each of the districts potentially needing State assistance (over 150 districts). Enrollment projections were also provided by some superintendents in their responses to the Battelle questionnaire.

(2) Estimates of New Classrooms Required: Using a computer program, Battelle took estimates of the number of currently available classrooms in each district and subtracted them from the number required to house estimated enrollments on the basis of 30 students for each elementary classroom and 25 students for each high school classroom. This procedure implicitly assumed that absolutely no overcrowding would be permissible – that is, if a district could provide for all elementary students except one, at 30 students per room, it was assumed that the district would be building one additional room. Obviously, many districts under this situation simply tolerate slight overcrowding. For that reason the Battelle estimates of new classrooms will tend to overstate the number of new classrooms likely to be built. On the other hand, it is sometimes economical to build some classrooms in anticipation of enrollment growth in order to capitalize on economies of scale in construction. Because this factor was not incorporated in the estimates, a tendency to understate building demands may also be present.

Also, it should be noted that the calculations assume that the State is willing to subsidize construction in some districts (those that reach eligibility for the State program) to produce 30 elementary or 25 secondary students per room, while many districts in the State which are not eligible for State assistance experience much more crowding than this.

(3) Estimates of Replacement Classrooms: Besides estimating the number of classrooms required to service enrollment increases, Battelle has included replacement needs in its calculations. Replacement needs were developed by taking at face value the reports of superintendents in the Annual Statistical Report of "rooms needed to replace unsatisfactory rooms in use". Any overstatement of needs made in this report (or any understatement) is, therefore, also reflected in the Battelle estimates of building program requirements.

(4) Revision of Estimates to Reflect Superintendents' Judgments: For those districts which filled out questionnaires, Battelle sought to avoid underestimating needs for State assistance by giving great weight to the superintendents' estimates of (a) classrooms needed and (b) enrollment increases. The basic approach was to accept the superintendents' estimates unless they were clearly unreasonable. For example, the projections of classroom needs as calculated by Battelle's methodology was only about one-third

as high as that of the superintendents' in the districts filling out the questionnaires. However, the Battelle enrollment estimates are relatively conservative for rapidly growing suburban districts. Thus, it should not be assumed that use of the superintendents' estimates necessarily exerted a substantial upward bias on the estimates. Approximately 14 percent of the total high estimate of building program needs is attributable to districts which did not respond to Battelle's questionnaire. Estimates of enrollment for these districts rely solely upon the Battelle enrollment projections.

(5) Conversion of Classroom Needs into Financial Terms: To convert classroom needs into dollars required for construction, Battelle used the standard construction cost estimates for schools. These estimates were increased by about 9 percent per year to reflect potential inflation in the costs of building schools. This rate reflects recent experience in school building costs during a period of high employment, considerable general price inflation throughout the economy, and a tight construction market due to sharp increases in both public and private construction. Many economists believe that this situation will not persist for the next 4 years. If it does not, the price of school construction will escalate less rapidly and the estimates presented here will be too high. On the other hand, Battelle did not separately price many special-purpose rooms, which are usually more expensive to construct and equip than standard classrooms.

Once the estimates of dollars required for construction were developed, Battelle sought to develop estimates of the local funds available. It will be recalled that all such local funds must be exhausted before State money can be used – thus, the more local funds are available the less the need for State assistance. Battelle did not assume the availability of significant Federal funds for construction assistance, although some superintendents undoubtedly assumed such funds in their questionnaire responses.

In calculating the funds available from new debt issuances, Battelle did not assume any growth in assessed valuation. In retrospect, this assumption, based upon the concept that many poor rural districts with stable assessed value would be recipients of State assistance, proved misleading. As discussed below, the districts likely to be eligible for State aid are primarily the rapidly growing suburban districts. Assessed value per pupil is not growing significantly in these districts, but both the number of pupils and gross assessed value are growing rapidly. This point should be obvious from the nature of suburban growth – which consists of construction of new housing units which draw new families. This combination drives up both enrollment and assessed value; the new houses add assessed value, and the new families add enrollment. For example, North Olmstead School District (Cuyahoga County) is one of the districts which our calculations indicate might present a sizable requirement for State building aid. In that district, enrollment increased by almost 10 percent from 1967 to 1968, but assessed value increased in the same year by 14 percent. Mad River-Green School District, another potential large claimant for State aid, increased its enrollment by 5 percent from 1967-68, but increased its assessed value by 6 percent.

The effect of these increases in assessed value on the Battelle calculations (and superintendents' estimates) are twofold. First, the increases provide considerably more funds available from local bonding capacity than the Battelle estimates assume. For example, a district increasing its assessed valuation by 6 percent per year from the 1968 level would have a bonding capacity in 1973 which was over 30 percent higher than assumed by the Battelle estimates. Second, unless debt rates are adjusted downward to account for all increases in assessed value, any given debt rate will tend to generate funds beyond those required to retire current obligations. Also, it should be noted that the

estimates we have prepared assume level payments to principal on old debt (and thus uniform reduction of old debt and uniform increases in bonding capacity under the 9 percent limitation). In fact, most Ohio obligations tend to have level total payment requirements with an increasing percentage going to principal each year, as less is required for interest on the declining principal balance.

As a result of all these factors, we believe that the estimates shown below substantially overstate the funds required for the State building program – even if no short-run changes of the type discussed in the next section were made in the program in order to reduce the State's costs. Nonetheless, it is worth noting that these estimates tend to be below some of the other, previously described, estimates of state building program needs.*

Another critical factor in projecting needs under the building program is the extent to which assistance will be denied to those districts which fail to maintain a high school enrollment of at least 500 pupils. Current appropriations legislation for the building program suggests that assistance to these districts will be granted only under exceptional circumstances – circumstances of the type that would justify a failure to consolidate. However, in the last round of State approvals two such districts – which were planning consolidation – were given assistance under the program. Table 1 reflects estimates with and without such districts.

TABLE 1. HIGH ESTIMATES – POSSIBLE STATE AID DEMANDS[a]

Expenditures Through	All Claimants	All Claimants Except Those With Small (Less Than 500)[b] High School Enrollment
October, 1971	$74.9 million	$54.1 million
October, 1973	$42.6 million	$35.3 million
October, 1975	$54.3 million	$50.5 million

(a) These estimates do not reflect deducations for State aid approved in 1968.
(b) 1972 enrollment projection used to calculate high school enrollment.

These estimates also reflect year of construction expenditure – State appropriations must precede actual expenditure.

It is important to note that these dollar estimates reflect – subject to the very major caveats noted above – what districts could request under the State program. They do not necessarily reflect what would be requested. To become eligible for State assistance, districts must agree (1) to bond up to the 9 percent limit, (2) to pay debt levy to repay such bonds, and (3) to pay an additional one-half mill levy to the State. Simply because buildings may be needed does not mean that voters or even school boards in these districts will be willing to meet the relatively stiff conditions for State aid. There is no reliable way to predict what percentage of potentially eligible districts will be deterred by the requirements for local financial participation. However, there undoubtedly will be some such districts.

*If confronted with this estimating job on some future occasion, Battelle – in light of its experiences in seeking to use a general enrollment projection methodology and questionnaire responses – would probably use the approach of an on-site survey of building conditions and probable enrollment trends in each school district potentially needing assistance. This approach – comparable to that used by the School Building Section to evaluate applications for assistance – is probably the most reliable (though also the most time consuming) method of estimating building needs.

Considering all the estimating difficulties discussed above, and all the uncertainties inherent in such an estimate, Battelle has nonetheless decided that presentation of a single number for building program appropriations is appropriate. This decision is based more upon knowledge that our study has produced more facts than available elsewhere, rather than upon certainty that the estimate is correct. This estimate is as follows:

(1) If Ohio wants to provide a level of State building assistance under the current program ground rules (particularly, shorter term enrollment projections and no assistance for districts without 500-pupil high schools), it should be prepared to appropriate about $20 million per biennium for the next several biennia to provide a tight funding level and roughly $40 million to provide for all eligible applications (including some districts with high school enrollment below 500).

(2) To anticipate enrollment increases as much as 5 years in advance (a practice likely to lead to better program administration) and to provide for all eligible districts, considerably greater funds would initially be required, perhaps as much as $40-60 million in the next biennium.

For the reasons noted in the discussion of short-run alternatives to the current program, Battelle does not necessarily recommend such appropriations but does suggest they are appropriate if the current program is to be continued in its current form.

In considering appropriation of these substantial sums it is important to understand where the benefits would accrue throughout the state. The concentration of assistance is likely to be in rapidly growing suburban districts, with only limited funds available for rural districts and no funds for large city districts. This is shown in Table 2 by a county breakdown of the total high estimate for possible state aid demands given in Table 1.

TABLE 2. COUNTY SHARES IN POTENTIAL BUILDING FUNDS

County	Percent of Total High Estimate[a] of Funds
Butler	6.2
Clark	5.2
Clermont	6.4
Cuyahoga (suburbs)	16.8
Franklin (suburbs)	6.7
Hamilton (suburbs)	7.3
Lake	4.0
Lorain	6.2
Lucas (suburbs)	6.5
Medina	5.1
Montgomery (suburbs)	4.7
Summit (suburbs)	7.1

(a) Moving to a funding level too low to cover all eligible applications would tend to reduce the proportion of assistance for major urban counties.

The districts included in the 12 counties listed above account for some 82 percent of the total high estimate of demands on the State building fund. They, and many of the remainder not listed, share many characteristics, all associated with suburbia. Based upon a sample of the 91 districts potentially receiving aid, it has been possible to construct a profile of the typical district likely to be claiming State aid if the current building program is continued and funded at a level to meet their needs.

The typical district is a former rural area located within commuting distance of one of Ohio's nine major cities. It is experiencing rapid growth due to the construction of a large number of single-family homes and/or garden-type apartments. Assessed valuation and enrollment are keeping pace with each other, but due to lack of commercial and industrial property the district has, and expects to continue to have, a substantially lower tax base per pupil than the State average. Its assessed value per pupil is probably $8,000 to $10,000. Its debt tax rate is from 7 to 8 mills – well above the state-wide median of about 5 mills. Its total tax rate tends to be above the state average – but not by very much because the district receives a much greater than average foundation program payment per pupil. The district is probably operating with crowded classrooms and, if it isn't, must be constructing new buildings to avoid this situation in the future. In addition, it may not yet have replaced some of the older buildings left from the district's rural past. Its educationally oriented electorate and its staff seek high educational standards and therefore wish to construct new buildings to relatively high standards and replace the older buildings as rapidly as feasible.

This profile of the districts most likely to benefit from additional appropriations to the State building program raises a number of important policy questions. First, it should be noted that if the limitation of debt to 9 percent of assessed value is ever lifted, these districts are exactly the ones likely to use this new freedom to pay for their own buildings. Second, these districts are poor districts only in the sense that they have relatively low property valuation compared to statewide averages. They undoubtedly have higher residential property values than those found in central cities or in rural areas; they simply do not have commercial and industrial property as a part of their tax base. If income rather than property were the criterion, these districts would certainly not be considered poor districts. While they are not the richest residential suburbs of Ohio, they reflect high enough incomes to permit a high percentage of ownership of relatively new and well-equipped homes. Third, it is important to note that these districts do not have the worst buildings in the State by any means. The buildings they do have are, on the whole, new and well equipped. Their buildings are in excellent shape when compared to those in the rural areas of Ohio and in cities such as Cleveland. On the whole, the problem in these districts is that existing ground rules do not permit them to provide facilities for expanding enrollments without coming to the State for aid. If income instead of property were the tax base for schools in Ohio, or if bonded indebtedness could be a higher percentage of the tax base, many of these districts would meet their own requirements without State aid.

Thus, in the final analysis, the appropriate level of financing for the school building program is not simply a question of estimating the demand for use of State funds in these districts. It is also a question of the relative emphasis which the State Board and the legislature wish to place on the needs of these districts relative to those of the poorer rural districts and the central city districts, neither of which have characteristics that will permit them to share significantly in the current State building program. That question of relative priorities can only be answered by the State Board and the legislature.

Short-Run Alternatives to School Facility Financing

The purpose of this section is to consider alternatives to the State's current facility financing aid program. Altogether the following three basic alternatives are considered:

(1) Eliminate State Aid for Facilities
(2) Increase Local Repayment to State
(3) Utilize Future Bonding Capacity.

Alternative 1: Eliminate State Aid for Facilities

In view of some of the unsatisfactory aspects of the current State aid program, one alternative is to simply eliminate the current program and develop a method by which local school districts can be tapped for the full cost of school buildings. At the moment, the primary reason why this is not possible is the 9 percent limit on bonded indebtedness. Thus, obviously, the most direct method to transfer some of the State school building costs back to local government is to remove the 9 percent limit on bonded indebtedness. This alternative may be desirable for more general reasons. As the Advisory Commission on Intergovernmental Relations has pointed out in its reports dealing with State restrictions on local debt, these restrictions on the whole do not serve highly desirable purposes. They are based upon notions of local irresponsibility developed before and during the Great Depression. They do not square with the concepts of local responsibility which have become a part of the political philosophy of Ohio. Nor are they entirely consistent with the demonstrated competence of many Ohio local governments. One of the great advantages to Ohio, in the increasing trend toward a smaller number of larger school districts, is the diminishing prospect that a school district will run amuck, particularly when a vote of the people is required to do it. Thus, the first and most significant step that the State could take to encourage the use of local funds rather than State funds for school buildings programs is to repeal the 9 percent limitation on bonded indebtedness.

Confronted with no limitation on bonded indebtedness and high building needs, some school districts could be expected to find it feasible to raise their bonded indebtedness as a percentage of assessed valuation to a somewhat higher proportion than 9 percent. As mentioned previously, many of the school districts where building needs are most striking are the rapidly growing suburban districts. Those districts do not face the prospect of continued building programs beyond the point at which they have filled up with new residents. In optimal school programming, the buildings would be built and ready at the time the students arrive. If anything like this process occurred, it would be natural for the school district to be exceeding its limitation on bonded indebtedness as it grew. It would also be natural, however, for its assessed valuation to increase rather substantially after the schools were built and the shopping centers and light industry began to move into these suburban areas. Many people do not believe nor have they seen evidence to indicate that the bond rating services or the buyers of the bonds would be adversely inclined by a significant degree by a move from, say, 9 percent to 10 percent in local bonded indebtedness. Support for this argument is found in the fact that the move, for example, from 8 percent to 9 percent, does not normally cause sharp increases in interest rates or sharp decreases in bond ratings.

Nonetheless, there is both a legal and an equity question involved in raising the ceiling on bonded indebtedness. To some extent it can be argued that the ceiling on bonded indebtedness is a part of the total package that bond buyers have purchased when they purchased Ohio school district bonds. Thus it could be argued that raising the ceiling is in some sense unfair to existing bond holders, particularly if new bond holders were to take parri parssu with the later bond holders in the event of default. This need not be a problem, although the institutional reaction of bond-rating services and law firms involved in bonding might tend to make it so. If it is a problem, perhaps the State should explore the possibility, coincident with a repeal on the limitation on bonded indebtedness, of some type of State guarantee for school-district bonds that are developed in excess of the 9 percent limitation on bonded indebtedness. Such a guarantee, of course, also raises legal problems in terms of the State's bonding capacity but could, for example, be secured by a pledge of first use of the repayments to the State under past school buildings program grants.

If the 9 percent limitation on bonded indebtedness is not to be changed, it is still possible to avoid the impact of that limitation by lease purchase plans of one type or another. The limitation on bonded indebtedness applies only to actual indebtedness incurred by a school district which is secured by the ability of the school district to raise funds from taxes in order to repay the principal and interest on the bonds.

The notion of lease-purchase as a method to avoid the necessity to raise funds by bonds is by no means new. Ohio, in the State building authority, is considering such a lease-purchase approach; Indiana now uses this method for school construction. The Federal government has used this alternative in the construction of post offices. Rather than incurring the large one-time capital cost of building new post offices the Post Office Department has, in many cases, chosen to contract with a private builder. Under such a contract the private builder constructs the necessary buildings to the specification of the post office, and the post office enters into a long-term lease, sometimes with the option to purchase at the termination of the lease.

There is no inherent reason why lease-purchase of schools would not be possible in Ohio, granted sufficient legal authority. However, one economic disadvantage should be noted. The nature of lease-purchase is such that the total costs tend to be higher than the total costs that are involved in direct-capital construction. This phenomenon occurs for two reasons: First, the lease-purchase program involves interest costs even though they are, in effect, payments made by the owner of the building which leases it to the State. Despite this, the lease to the State will reflect a price that includes an interest component. Second, the price tends to be higher because the capital which is raised by the owner of a building under a lease-purchase plan is raised in the private securities market and at an interest rate which is somewhat higher than the interest rate that would be incurred by state and local governments which can issue obligations, the interest on which is exempt from State, local, and Federal taxation.

It is interesting to note in this connection that the Little Hoover Commission recommended enactment of legislation so that school districts could use long-term installment contracts to finance the acquisition of school facilities. The practitioners panel, which considered the feasibility of this recommendation, recommended that legislation be initiated on a permissive basis for lease-purchase plans. *

*Ohio Department of Education, Practitioner Panel Feasibility and Implementation Study of Public School Survey and Recommendations of the Council for Reorganization of Ohio State Government (October, 1968), page 37.

Evaluation of Alternative 1. The main advantage of this alternative relative to the current program is that it removes previously noted tendencies toward inefficient allocation that are inherent in the current program. Local administrators will be encouraged to evaluate the tradeoffs between school construction and maintenance, repair, and rehabilitation in an economically rational manner. School facilities will now be competing for funds from the same local source that is used for purchasing equipment and paying teachers. The construction of schools will be viewed in its proper perspective as simply one element in the education process which can best be weighed in its importance with other elements of the educational process under the control of the local school districts.

Clearly, for efficiency, this alternative represents an improvement over the current program. Unfortunately, the same cannot be said in connection with equity. It is true that this program will eliminate aid currently going to higher income suburbs and to this extent will no doubt further the overall objectives of equalizing opportunity among the State's school districts. And these suburbs, since they will now have increased freedom to build the amount and kind of facilities they want and can afford, may very well end up as net gainers. The problem is that, in eliminating aid to these suburbs, aid to the poor rural districts will be eliminated as well. The children in these rural districts, who already have the below-average educational opportunity, will be deprived even more. Consequently, this alternative, despite its potential gain in efficiency, tends to reduce equalization and, therefore, would appear undesirable unless compensating changes to increase equalization were made elsewhere (e.g., in the foundation program). The equalization problem could also be avoided if lease-purchase were applied only to districts of average and higher-than-average assessed valuation (and districts expecting increase in valuation), but not applied to poorer rural districts for which the state program could be continued.

Alternative 2: Raise Local Repayments

The current State building program is financed over 90 percent by the appropriation of new capital funds from State borrowing authority or from State general funds. Only a minor portion of the funds available for the school buildings program have developed in the form of repayments from school districts that have received building assistance in the past. These repayments tend to constitute less than 30 percent of the total cost to the State in providing the school facilities under the school buildings program. If interest costs are taken into account, as they should be, then the percentage which the State recoups from local districts is substantially lower than 20 percent. There are a variety of methods by which the State could recoup more than this small percentage of funds from the local districts that have received assistance. Essentially these consist in various methods of increasing the repayment requirements of the local districts. There are three ways in which this can be done.

Increase Payback Rate to 1 Mill or More. The current requirement on a school district to repay at the rate of one-half mill is essentially an arbitrary determination that this is the right figure. It is not obvious that it is. The larger the repayment requirement, the less the people of the State of Ohio tend to support the particular districts that receive assistance from the school building fund. The smaller the repayment requirement, the greater the contribution which is made by all the people of Ohio for a particular district. One way to achieve increased local responsibility is to raise the repayment requirement above the current one-half mill. Given the nature of assistance provided by the State, it would not seem unreasonable to raise the requirement at least to 1 mill and probably in most cases well beyond 1 mill, to 2 mills or even 2-1/2 mills (if

this much were required for a 23-year payback) while continuing the requirement that a local district pay the difference between a fixed millage rate for debt and the millage rate that is provided for nonstate debt. The existing 4-mill ceiling on this procedure could also be changed to a figure approximating 7-8 mills (a rate that is not out of line with that paid by some of the school districts in Ohio which have not received any assistance from the State).

Roughly speaking, raising the millage rate from one-half to 1.5 could move the likely repayments to the State from a level approximating 20 percent of the State's cost (without interest) to a level approximating 60 percent of the State's cost (without interest). Viewed from the standpoint of its impact upon the availability of State funds, the impact, particularly in later years, would be substantial. Repayments during the most recent year have run at the level of approximately $700,000, on the basis of a one-half mill levy. On the basis of a 2-mill levy, those repayments would have been $2.8 million. The State would have had to raise from its own sources $2.1 million less, or if it had kept the same funds from its own sources, the State would have been able to offer $2.1 million more in building assistance to needy school districts. One of the impacts of this, in the round of approvals which took place in 1968, is that it would have permitted essentially all of the districts that were found to be eligible for State assistance to receive that assistance. As the actual review process occurred, some districts that were found to be eligible under the criteria were denied funds for the simple reason that the state lacked sufficient funds to provide for them. Raising the millage-repayment rate, thus, is not a question solely of whether certain allegedly poor school districts will have to pay more, which they may or may not be able to afford; it is also a question of whether certain needy school districts will, in fact, be permitted to receive State aid or will be denied that aid for lack of funds. Raising the millage rate tends to make it possible for more districts to benefit from the State buildings program, but the benefit to each single district is less, given the assumption that there is a limit (which there most certainly is) on the amount which the State is willing to make available for school-buildings purposes from normal appropriations.

Extend Payback Years. The current requirement for repayment of school building program assistance has a maximum limitation of 23 years over which the one-half mill must be levied. There is no discernable logic that would justify 23 years as distinct from 20 years or 26 years or some other figure as the appropriate period for repayment to the State, except to the extent 23 years approximates the average repayment period for school bonds. Viewed as an investment in a capital asset, the purchase of a school building certainly creates an asset which, in Ohio practice, has been kept in use for a period much longer than 23 years. The average useful age of a school building (not in theory but in the way school buildings in Ohio are actually used) is more like 40 years than 23. There is no particular reason for the repayments for the school building not to stretch as long a time as the useful life of the building, assuming that the one-half mill levy does not pay for the building at an earlier point. The impact of stretching the time over which repayment would take place would be to increase the repayments to the State more than proportional to the increase in time involved, assuming that assessed valuations are rising in those districts that have repayment requirements.

Charge Interest for Full Repayment. At least one school district has already repaid the State in full for its contribution. If the repayment period were extended or if the millage rate were raised from one-half mill to some higher figure, a significant number

of school districts would be capable of repaying the State for its contribution to its school buildings as that contribution is now calculated. The present State building procedures require the school district to repay only the State's capital contribution. No interest charges at all are reflected in the repayments, even though the State frequently has had to borrow the money and pay interest on it in order to make it available for the local school buildings. Particularly in the case of those districts that stand more meaningful chance of paying back the State in full, it would seem logical that these districts be required to repay both principal and interest. In such an approach, interest could be calculated on the basis of the average State borrowing rate as determined by the Auditor. This action, too, would tend to increase the amount of money available within the State building program funds for additional needy districts which may subsequently apply for State assistance.

Alternative 3. Utilize Future Bonding Capacity

Under its present procedures the school building program requires that a district, in response to the State's conditional approval of its application, approve bonded indebtedness up to within $5,000 of 9 percent of its total assessed valuation. The purpose of this procedure is to require the locality to exhaust its legal bonding capacity before turning to the State for assistance. The requirement that local funds be applied to construction costs and exhausted before State funds can be utilized is consistent with this approach. However, the approach fails to tap the full bonding capacity of the local district during the life of the school. The bonding capacity of the district at the time the school is built is fully tapped, but the bonding capacity of the district at subsequent dates is not tapped. For that reason, if the State wishes to incur somewhat greater administrative complexity in its school building program, it can shift more of the burden onto the local district. This can be done by tapping the growth in bonding capacity which occurs in many districts in the years that elapse between the time that the initial bonds are voted and the time that the bulk of the expenditures for school construction have been undertaken.

Under such a procedure, the voters, assuming such a procedure meets legal and bond-counsel approval, would authorize the issue of bonds which would later be calculated to be within 9 percent of $5,000 of assessed valuation. Such a procedure would permit the district to reduce the State's cost by utilizing (1) additional bonding capability which results from normal repayments of principal on bonds already outstanding and (2) any additional bonding authority which results from the growth of assessed valuation.

The State could go even further. It could require that a school district, long after the school has been constructed, seek to repay the State by capital funds raised by borrowing as well as by the funds raised by the half-mill levy. Currently, when a school district goes to its bonded limitation once, it has fulfilled its obligations to the State except insofar as those obligations are reflected in the requirement to levy one-half mill on assessed valuation for a period of 23 years. Thus, 10 years after a school building which has received State assistance is built, a district may well find itself in the position where its bonded indebtedness as a percentage of assessed valuation has slipped to, say, 5 percent. However, its only obligation to the State is to repay at the rate indicated by one-half mill on assessed valuation. If this is the case, and the State wishes to be extremely stringent in pushing local districts to assume a greater share of school building costs, it could require that the local district raise its bonded indebtedness from 5 percent to 9 percent, and utilize the bond proceeds thus developed for repayment of the State's contribution in constructing the building. This approach, however, would be hard to implement directly.

One indirect method would be to require the voters to accept, as a condition for State aid, a half-mill levy for so long as the bonded indebtedness was between 8 and 9 percent of total assessed valuation, to be raised to, say, 1-1/2 mills if the percentage dropped to between 5 and 8 mills and to be raised to 4 mills if the percentage dropped below 5. To some extent the existing arrangement in Chapter 3318 seems to arrive at this result by working with the debt rate itself. That is, when the debt rate drops below 3.5 mills, the repayment requirement to the State is increased from one-half mill to the difference between 4 mills and the current debt rate. Battelle's earlier suggestion that the 4 mills in this calculation be raised to 7-8 mills would tend toward the same result as directly tapping increases in bonding capacity.

Evaluation of Alternatives 2 and 3. Both Alternatives 2 and 3, by significantly increasing the extent to which local districts must pay for their own buildings, share with Alternative 1 the promise of significant improvements in efficiency over the current program. To the extent that the amount of local repayment may not be complete, as it would be under Alternative 1, the gain in efficiency might be somewhat less.

Offsetting this relatively minor drawback in efficiency, however, is the fact that these alternatives offer improvements in relation to both the ODE's objectives of local autonomy and equalization. Under both Alternatives 2 and 3 the amount of increased local payback, relative to what it would be under the current program, is positively related to the future growth of a district's tax base. Thus, rapidly-growing-wealthier or soon-to-be-wealthier suburban areas that can afford it will be paying back more than the poorer nongrowing rural areas. On the one hand, under these circumstances it will not be necessary for the State to deny the wealthier areas the high-cost building features they may desire, as the local taxpayer, not the State, would eventually pay the bill. On the other hand, due to the greater local payback, State facility aid costs would be reduced. A higher proportion, perhaps all, of the districts with approved requests for State aid would be able to receive aid. Under the current program, some districts which require State aid do not receive it due to lack of funds. In effect, those districts are singled out and made to suffer the major burdens of inadequate school facilities. These inequities, produced due to the tight funding policy under the current program, would be relieved.

Summarizing, Alternatives 2 and 3, taken either one at a time or in some combination, promise gains in relation to all the ODE's major objectives – efficiency, equalization, and local autonomy. At the same time, these alternatives may have some political appeal. They promise to relieve some burden on State education funds and/or to spread available State building funds over a larger number of districts. While the burden on some districts would be increased, those districts would be the ones that could best afford to bear such a burden. These districts would also be compensated by reduced State control over their building plans.

Moves toward fuller repayment should also improve the likelihood of sufficient appropriations from the legislature to cover all building program applications. At the present time, the building program is largely a grant program – repayments represent only a small proportion of the State's total costs. For that reason, legislators may be reluctant to back the program, particularly as it involves sizable assistance to only about 10 percent of Ohio school districts and nothing for the remainder. Also, both legislators and administrators may frown upon providing assistance several times to the same school district – yet this is an inevitable part of the current program.

Fuller repayment would permit the legislature to either (1) spend less State money on the program in the long run or (2) spend the same amount but assist more districts. Further, the more the school building program resembles a true loan program, the less objectionable repeated financing for the same school district will become. For these reasons even the districts receiving State assistance may benefit from higher repayment requirements.

The desirability of fuller repayment in terms of the Board's goal of more and better education throughout Ohio will depend upon assumptions about what happens to money saved by these methods of making school districts bear more facilities costs. If the State's savings were diverted to noneducational projects, the net effect would be to reduce the funds available for Ohio education – presumably an undesirable result in light of the Board's objectives. On the other hand, if these funds could be used for other educational purposes of the Board's choosing (e.g., higher foundation payments, expanded vocational education, or even benefiting more districts by assistance for building), the result would be a net gain in educational expenditures, and presumably educational results.

On the whole, moving in the direction of increasing local responsibility for school facilities through Alternatives 2 and 3 would seem a desirable step for the State. *

Short-Run Alternatives for School Facility Planning

The various actions that can be taken by the State of Ohio for short-run improvements in school building planning are discussed in this section.

Currently, school facilities are matters for local determination in Ohio, except in those few school districts which come to the State seeking assistance for school building construction. The Little Hoover Commission, in reviewing the situation, while not dealing specifically with an overall State role, made a variety of specific recommendations which in substance would have increased substantially the State's role in educational facilities as in a variety of other areas. The basis of these recommendations was that additional efficiency could be achieved in providing education in the State of Ohio through the type of sophistication and detailed planning which would be available if facilities were planned on a broader basis than under current programs.

On the whole, Battelle concurs on these observations of the Little Hoover Commission and is encouraged by the fact that the practitioners panel on the Little Hoover Commission recommendations has supported a variety of them. The individual Ohio school district with, for example, school enrollment of 5 to 10 thousand, is not likely to build more than one building every 2 or 3 years in the next decade. Many such districts will not build any buildings at all. Under these circumstances it is unrealistic to expect such school districts to maintain a full-time school facilities planning function with personnel who are aware of innovations in construction techniques, and in instructional techniques as they affect construction. In the absence of this information the school district, when it does build a building, is likely to build in the traditional form, with its educational policy largely controlled by an architect who may or may not be familiar with innovative

*This recommendation is not a recommendation that the State play a smaller role in educational finance. It is only a recommendation intended somewhat to correct a situation where the State pays 100 percent of some facilities costs and none of the rest, while providing on the order of one-third of operating costs. The recommendation is fully consistent with the views of those (including some of the authors of this report) who favor greater State participation in overall school finance.

instructional approaches. More facilities can be bought for Ohio dollars if those districts that are not large enough to maintain a fulltime facilities planning function utilize expanded State leadership made available in this field.

Besides lacking a facilities leadership role, there is another feature missing from the current State program. The State maintains a school building section. Yet the School Building Section's role has been confined largely to processing applications and administering grants under the current school building program. This program, at best, benefits only some 5 percent of the pupils of Ohio. Even when one considers the basic elements of statewide school facilities planning, it is important to recognize that the State is not currently aware of the status of school construction except in these districts receiving assistance. This is indicated by the paucity of data on facilities as discussed in preceding sections. Information is not available in the School Building Section on apparent school needs throughout the State. Such information as is available is normally unutilized and the reports by which it is collected are, on the whole, not related to school building planning. The School Building Section does not perform a general leadership role in State facilities planning to any degree and is not in a position to advise the State Board, the Superintendent of Public Instruction, or the legislature on the overall school building situation. Records are not kept of new construction plans, nor is information on changes in bonded indebtedness kept in a systematic way. Such information and such State leadership could be provided at a relatively low cost – in fact, some information gains could be achieved simply by better communications within the Ohio Department of Education. The School Building Section could readily perform this function – it simply has not been asked nor staffed to do so.

Given these initial perceptions of the school building situation and the lack of State leadership in school buildings, Battelle sought to survey the opinions of Ohio superintendents on the question of an expanded role for the school building section in the development and planning of school facilities. The results of survey are considered next.

Results of Survey on a School Facilities Resource Center

All school superintendents in Ohio were surveyed to find out what they thought about a statewide school facilities resource center and what responsibilities such a center should have. Questionnaires were mailed to 736 superintendents – all county and individual superintendents in Ohio. Responses were received from 492 superintendents. Eighty-two percent of those answering favored the establishment of a school facilities resource center; 92 percent of those answering said they would consult such a center if it were available. Many of those who did not favor the establishment of the center said they would consult such a center if it were available. Only 37 percent of all the superintendents said they would be willing to pay a fee for such consulting, 23 percent of all superintendents would not pay a fee, and the remainder didn't know if they would pay a fee or not. Only 11 percent of those answering have a person or staff whose primary responsibility is evaluating the need for facilities and assisting in the planning and implementation of new school building construction.

Many superintendents made additional comments. Most of them felt that a school facilities resource center is needed in Ohio. A few of them felt that it was a duplication of effort; that is, they already had a source they could consult with on these problems. A few others didn't think it would work. Some thought it wasn't needed at all. As one superintendent said, "Let the state keep their nose out of building".

Many superintendents were concerned with the way the center might operate. Many of them stressed the importance of having competent and sufficient personnel to handle the problems. Some suggested that there be more than one center so that the center would be more accessible to everyone. They were interested in having it easy to use with no red tape. They also did not want the State to dictate how things should be done. A number of superintendents were concerned about the cost of the center. Several superintendents thought there should be some interrelations between the new center and those now existing at the universities. Some thought it should be a service of the State Department of Education.

Most of the superintendents are interested in having the school facilities resource center disseminate the most current information on various phases of school construction. The superintendents favor having the resource center provide guidelines and assistance in evaluating existing facilities. Most would also like the center to provide local school districts with current lists and specifications for fixed and loose school equipment and to provide assistance in formulating long-range plans for school construction.

More than half of the superintendents would like the center to provide guidelines for contracts between boards of education and architects that would cover the areas of responsibility that are to be borne fully by the architect. About 57 percent of all the superintendents would like the center to conduct seminars on school-construction problems. Among the city superintendents, 66 percent favored the seminars while among the superintendents of exempted villages, only 49 percent favored such seminars.

Only 42 percent of all superintendents would like the school facilities resource center to develop guidelines for the assistance in advance acquisition of school sites; however, 52 percent of the city superintendents were in favor of this. Only 40 percent were interested in having the center provide assistance in managing the investment of inactive building project funds. Only 33 percent of the superintendents would be interested in having the center provide up-to-date information on architects doing school work in Ohio.

A few superintendents expressed a desire for assistance in long-range planning. One suggested that the resource center provide upon request "assistance in formulating long-range plans for reorganization to prevent construction of buildings that do not fit into future patterns". They should also upon request "approve or disapprove high school additions which use bonding capacity and handicap later use of local funds for construction in reorganized districts". A number also expressed the need for help in projecting enrollment to help them in determining building needs. Some were interested in estimates of future construction costs.

A number of superintendents would like help in formulating architectural designs consistent with their educational specifications. One suggested that there be standardized building plans to reduce architectural fees.

Some superintendents would like assistance in better utilization of their present buildings.

Some school superintendents desire some legal assistance. One suggested there be some specifications for the proper amount of school insurance for current buildings and equipment.

Several superintendents suggested there be some type of help for dealing with the public. Their suggestions included a film library and/or other materials that could be

used in public meetings to educate parents about building trends, audiovisual and printed materials for passage of voting issues, seminars on selling bond issues to the public, and assistance concerning the problem of disposing of or using old school buildings that are no longer fit for classroom use.

Some other suggestions for a resource center were that it should evaluate old facilities, that it include plant maintenance and remodeling, that it serve as a testing laboratory for building materials and equipment, and that it suggest economies that can be made in various types of construction – heating and lighting – without sacrificing standards.

Battelle's Recommendations

Based upon a review of the opinions of superintendents and an appraisal of the functions of the School Building Section in comparison to other functions of the State Department of Education, Battelle offers the following recommendations:

(1) The School Building Section should be charged with overall responsibility for appraising and making recommendations regarding the adequacy of school facilities, and planning and construction needs in the State of Ohio.

The State would be well rewarded by the relatively minor expense involved in assigning to the School Building Section the function of maintaining knowledge of the status of school building planning and construction in the State of Ohio. At a minimum we believe this function should consist of (a) being informed of the status of the school facilities planning activities in various school districts through a systematic program of exchange of information, perhaps conferences of school buildings coordinators in the various larger school districts, and perhaps a newsletter about school facilities, (b) the maintenance and compilation of statistics on the adequacy of school construction on the adequacy of school buildings, the types of construction taking place, the costs involved, the architects and other firms being used, (c) the systematic dissemination of information regarding the use of bonding within the State for school building construction and the constant maintenance of some generalized inventory of school facilities in the State. These functions should be placed in the same organizational unit that has responsibility for the State school building program to avoid duplication of effort and to capitalize upon existing knowledge of the Ohio building situation.

(2) The State, through the School Building Section, should assume some leadership in seeking to encourage innovation in school construction.

It would not be consistent with Ohio's educational processes or the political philosophy which prevails to give the State generalized control over the types of school buildings that are built by individual districts nor over the choice of architects or contractors. We do believe, however, that the State can successfully operate in a voluntary leadership role to convey to local school districts information which will help them in planning and executing their building responsibilities. The State School Building Section should be used as a centralized source of information on potential innovative techniques in school construction. To this end, it should retain information on activities being carried out in other states in the school building area and should provide, in some systematic form, information to school districts on innovative concepts in school construction. School districts would not be required to accept any of this information or to use it, but the very existence of this activity at the state level would tend to encourage innovation at the local level at a very minor cost.

(3) The School Building Section should have continuing responsibility to monitor the school building activities in Ohio and to make periodical recommendations for its improvement.

Continuing evaluation is important in any field; school facilities are no exception. The School Building Section should be charged with the general responsibility of watching the performance of school facilities construction and planning in Ohio. It should make recommendations, when it deems such recommendations to be desirable and feasible of accomplishment, for either a reduced or a further increased State role and for such revisions as might be necessary in either the foundation program or the current State building program to enable them more adequately to meet the needs for school building construction in Ohio.

These recommendations could be implemented at relatively minor cost. The general appraisal of school facilities and the responsibility for preparing recommendations for change when warranted ought to be accomplished by the addition of one full-time professional staff member added to the School Building Section.

The function of improving innovation could be carried out, at least initially, by another additional staff member. Other staff members could be added only as the use of the State's activity by local school building personnel tended to increase and to justify the workload involved. This function would, in essence, be the beginning of a State school resource center of the type described by the Little Hoover Commission, but implementation would proceed gradually based upon the use which superintendents actually make of the program. Because the program would be evolutionary, and frankly experimental at first, the State should not contemplate a fee for this activity until sufficient experience with the costs of carrying it out are developed to permit estimation of an appropriate fee schedule.

If the State Department of Education should decide to adopt a regional center concept for some purposes (e.g., data processing), technical assistance functions regarding facilities might be incorporated in such centers.

MEETING NEEDS IN THE LONG RUN

The preceding section analyzed the needs for the State school building program in the short run. To keep the recommendations of that section within likely resource and short-run political constraints, the alternatives considered were limited to modifications of the existing program. In this section, a longer view is taken by dropping any presumption in favor of the current program. Thus, this section considers how the State's response to building needs might be improved. Because the short-run changes recommended in the area of State leadership in facilities planning are equally valid for the long run, this section concentrates on the question of financing. Finally, the separation that exists in the current aid structure between the financing of facilities and the financing of other aspects of education is dropped in favor of an overall system perspective. Within this perspective the financing of any one aspect of education (such as buildings) must be considered in relation to how all other aspects are financed.

Three long-run alternatives have been selected for analysis. These alternatives (excluding continuation of the current system of primary reliance on debt finance through individual school districts) are:

(1) Inclusion of school facility financing in the present school foundation program

(2) Inclusion of school facility financing through a school foundation program of an equal effort-equal result formula

(3) Shifting facilities financing toward a countywide tax base.

Alternative 1: Inclusion of School Facility Financing in the Present Foundation Program

As indicated in the discussion of needs, the one alternative to the current program most frequently mentioned in the questionnaire responses was inclusion of facilities aid in the foundation program. Many states incorporate capital costs as a portion of their foundation program's basic allotment.

The current foundation program provides State education aid on a "local need minus local ability" basis. Essentially, the calculation proceeds as follows:

(1) Determine district's financial needs for providing an adequate education program. Needs are based on number of pupils, certification, and experience of teachers employed, transportation, and other operating expenses.

(2) Determine district's ability to finance these needs. Ability is measured by multiplying the district's total assessed valuation by 17.5 mills. *

(3) Determine the amount of State support due to the district under the foundation formula by subtracting its ability to pay from its needs.

(4) Compare the State support due under the formula with a basic minimum support guaranteed to all districts. Pay the district the larger of these two amounts.

Under this alternative, capital outlay needs for new construction would be added to the estimate of needs. This would include facilities both for replacing old buildings and for housing enrollment growth. An estimate of growth needs could be made simply by multiplying the average cost of housing a student times the number of additional pupils in the system (as measured by ADM).

Determining replacement needs is somewhat more complicated. One method would be to have buildings, which local districts felt needed replacing, checked by State officials and approved for inclusion in need calculations. A serious drawback to this approach is that it penalizes districts that follow proper maintenance practices and rewards those that don't. This is obviously both inefficient and inequitable. An alternative is to provide aid equal to estimated total depreciation and maintenance costs. Depreciation costs could be estimated, on a straight-line basis, by dividing total construction cost by expected life of building. For existing buildings, expected remaining life could be used as the divisor.

*In theory the mill rate used in this calculation is arrived at by selecting some key district, presumably one of the wealthiest ones in the State, and finding out what rate it would have to tax itself in order to pay for its educational needs as defined in the formula. This concept, which underlies this form of foundation practice, is not followed in Ohio.

Since the amount needed to cover depreciation costs would not be needed until the building was scheduled for replacement, a special school construction bank could be established. Each district could be credited with an amount equal to its total depreciation costs. Similarly, subtractions could be made from credits for districts which, due to declining enrollments, would not have to replace old classrooms. Withdrawals would be limited to amounts needed to replace old buildings. Each district's account could be allowed to earn a fair interest rate. This would cover inflation in building costs and at the same time remove any incentive local districts might otherwise have to make withdrawals for premature replacement of old buildings.

Evaluation of Alternative 1

The drawbacks to this alternative are several. First, there are administrative and technical difficulties. Technical difficulties include the problems of estimating life expectancy and determining a fair interest rate. Life expectancy of a building varies with type of materials used and its design. How can life expectancy be accurately determined for new buildings that use new materials and new design concepts? As the rate of building cost inflation can't be predicted in certainty, any particular interest rate may or may not cover inflation. Finally, there is the administrative difficulty of the State's predicting how much will be withdrawn from the school construction bank in any given year so that the required cash is available.

It might be worthwhile to try to overcome these technical difficulties if it weren't for the other serious drawbacks of this alternative. These other drawbacks are essentially the drawbacks of the foundation program itself. As it currently stands, the foundation program falls far short of both efficiency and equity objectives.

Because aid is tied to particular uses such as teachers and buildings, local administrators will not be able to take advantage of any potential efficiencies that might be obtained by changing this allocation. Since funds are tied to particular categories in standardized amounts, this can be expected to inhibit innovative practices. Suppose, for example, a district finds it can get more education per dollar by having fewer than the standard number of teachers and substituting the use of administrative assistants. It will be discouraged from doing so under the current formula because it gets no aid for administrative assistants. Similarly, a local district might want to innovate in school building design but be discouraged by the standardized method of determining aid.

More important than this, however, is the fact that under the current foundation program huge disparities exist among the abilities of different local districts to provide education. * This is bound to occur under the current formula to the extent that (1) flat grants are given regardless of need and (2) educational needs, as defined in the formula, are set at some point below that obtained by the wealthier districts. The foundation program assures that practically all districts can receive some minimum level of aid. The wealthier districts are, obviously, most able to go beyond this level. Furthermore, since the amount of aid is relative to a fixed rate, currently 17.5 mills, adding aid for facilities may well tend to increase rather than reduce the degree of inequity. This is

*To illustrate this disparity we may compare the poorest district with the wealthiest. The poorest district, Western (Pike County), has an assessed valuation of $3,371 per pupil, a tax rate of 25 mills, and total expenditure per pupil of ($84 local and $369 State) $443. Cuyahoga Heights, the richest district, has an assessed valuation of $143,044 per pupil. With a tax rate of only 9.40 mills they can obtain $1,344 per pupil locally. This most extreme disparity among recipients of foundation assistance will be affected by the new minimum levy required to receive foundation payments (17.5 mills). Other less extreme disparities will, however, persist.

because (unless the mill rate is increased) all aid for facilities would be added, without any regard for economic wealth of the district, to the amount of aid a district currently receives under the formula.

Inequities are further increased by the particular way in which teacher utilization figures into the calculation of aid. The current formula provides more aid to districts employing teachers with higher degrees and more experience. Since the wealthier districts are more able to compete for and obtain the services of these teachers, they, rather than the poorer districts, are the most likely beneficiaries of this procedure. Related to this is the fact that many teachers, other things being equal, tend to prefer schools that have middle or upper class children and are nearer to metropolitan areas. Consequently, some schools (most notably inner-city schools), in order to compete satisfactorily for teachers, may have to pay higher salaries to avoid higher turnover rates and, ultimately, poorer teachers. The current foundation program takes no account of this factor, except in the newly enacted ADC factor.

A final drawback to including facilities in the current foundation program is that such action may aggravate current problems with that program. In allowing the large disparities between districts to exist, the program indirectly fosters inefficiency. This is because the small, wealthier districts will, under this system, be discouraged from consolidating with small, poorer districts to take advantage of savings due to economies of scale.

In view of these drawbacks, the alternative of including facilities aid within the current foundation program does not appear particularly promising. However, because the main difficulties inherent in using the foundation program for facility financing are those problems with the foundation formula, it may be possible to develop a foundation formula that removes some of these difficulties – and thus becomes a suitable vehicle for financing facilities.

Alternative 2: Inclusion of School Facilities Financing Through a School Foundation Program of an Equal Effort-Equal Result Formula

The foundation program currently operates, as we have seen, with a "local need minus local ability" formula. Here we consider as an alternative to this an "equal effort-equal result" formula. This type of program, with some variation, has been adopted in several states including Wisconsin, Rhode Island, New Mexico, and New York. As in the previous alternative, the possibility of handling both operating and capital costs in the same program is considered.

The basic concept underlying this alternative is that there should be made available as many dollars per pupil for children in the poorest district as in the wealthiest district. This is accomplished by placing a guaranteed valuation in back of each child. The same tax rate on equalized valuation of property (or any other kind of tax base) should produce the same amount of money for each child from State and local sources in all districts. Under this alternative each local district chooses its own tax rate and, hence, the level of education it wants. The difference between the amount raised locally and what would have been raised by this tax rate had it been applied to the assessed valuation of the richest district is provided by the State.

Evaluation of Alternative 2

This alternative, compared to the previous alternative, is both extremely efficient and equitable. In addition, it provides for maximum freedom of choice at the local level.

Efficiency is encouraged relative to the current foundation program in two ways. First, since funds are not tied to any particular category, a dollar spent in one category is as much of a cost to the local district as a dollar spent in any other. This maximizes the incentive for local administrators to allocate funds to achieve maximum educational payoff per dollar. Second, since poor districts would now be put on an equal footing with their richer neighbors, potential financial loss to the richer district would no longer be a factor inhibiting consolidations. With no built-in financial penalty to the small, richer districts for consolidating, a major impediment to consolidation would be removed.

In addition to these improvements in efficiency, equalization is significantly increased. Aside from a few special problems which are discussed below, the children in all districts would truly have equal educational opportunity regardless of the economic conditions of the area where they live.

The few special problems relate to the fact that equalization, under this alternative, is achieved in terms of dollars spent per pupil. It fails to take into account special problems in different districts which might cause the cost per unit of education to vary. Such problems most notably include the need for transportation in sparsely populated districts, the increased need for new facilities in rapidly growing districts, the special problems of the handicapped and disadvantaged children, and the special problems of unusually high noneducational taxes in central cities.

What, however, should be done about facilities? To a major extent, under this program the concern about differences in facility needs is minimized. This is because, on the average over the long run, facility costs, although they vary significantly from one year to another, tend to average out as a relatively small part of the overall educational budget (on the order of 14 percent). Replacements for any given district, furthermore, are probably very highly correlated in the long run with the number of pupils in the district so that these needs are implicitly handled by the proposed formula which guarantees equal backing to all pupils. Special needs for handling growth still, however, might represent an equity problem, especially with the current small-district organization structure under which the growth rates are so uneven.

Aside from this problem of handling the needs of rapidly growing districts, there is one major difficulty with this alternative which makes it, in all probability, politically unfeasible. The richest district in the State is Cuyahoga Heights, with over $143 thousand of assessed valuation per pupil. The ratio of this to the poorest district is on the order of 50 to 1. This means any program aimed at guaranteeing all districts the same tax base as the richest district would imply a level of State aid for education far beyond that which is feasible. The next alternative takes this problem into account.

Alternative 3: County-Wide Tax Base

Many States, 26 in all, have arrangements for levying school taxes on a county-wide basis and then returning the funds to the local districts in accordance with some appropriate distribution formula. Under this alternative, local districts in the same county share

a common tax but retain autonomy in managing their own education programs. Ideally, special programs such as those for handicapped and disadvantaged children may be jointly financed and run on a county-wide basis. Similarly, the county as a whole might bear the burden of financing new buildings, especially those built to handle enrollment growth.

Movement toward a broader base for local school taxation would not relieve the need for continued State foundation payments. A broader local tax base can be combined with either of the two kinds of State aid programs mentioned above, i.e., either a "local needs less local ability to pay" formula as in the current foundation program or an "equal effort-equal result" formula proposed in Alternative 3. Under the latter alternative, which we wish to consider here, State aid would be given to each county in a way that, in effect, guaranteed an equal tax base per pupil.

Evaluation of Alternative 3

This alternative has all the advantages of Alternative 2 except one. There is some loss of local freedom of choice. With school levies set on a county-wide basis, local districts are forced to sacrifice some autonomy in choosing the level at which they wish to support education.

In return for this loss in local autonomy there is a potential major gain in feasibility. Using a county-wide tax base leads to dramatic equalization of tax bases per pupil. Compared to the 50 to 1 ratio that now holds between richest and poorest districts, the ratio between richest and poorest counties would be only 5 to 1. Within this context, the level of State aid required to guarantee equal tax base per pupil would be significantly reduced and potentially feasible.

Another advantage of this alternative is that by using the county funds to finance facilities, this source of inequity tends to be significantly reduced. This is because there is much less spread in enrollment growth rates among counties than among the small local districts. This means that building needs for growth are fairly equal on a per-pupil basis among counties.

CONCLUSION

In view of all the advantages in efficiency and equity and in view of the high degree of local autonomy that is maintained in an equal effort-equal result form of foundation formula, that alternative represents the greatest potential for a formula into which facilities financing could be incorporated to satisfy the objectives of the Ohio Department of Education. However, given the wide disparities in tax bases currently existing among Ohio school districts, implementation of this approach in its pure form is probably neither financially nor politically feasible.

However, variations of this approach which are more likely to be feasible financially and politically may provide a more suitable basis than the present formula as a vehicle for financing facilities. The current foundation formula is being reviewed by a committee of Ohio legislature. The subject of foundation formulas is inherently complex and has certainly not been exhausted in this report, with its primary emphasis on facilities financing. However, it does seem reasonable to conclude that actions that reduce

school district financial disparities move in the direction of permitting a financially feasible equal effort-equal result situation. Movement toward a county tax base is believed to be particularly promising, and does not require administrative consolidation of districts which cherish their independence in setting educational policy. Increased consolidation has similar economic results – particularly when consolidations result in county-wide school districts.

Further research into the ramifications of particular foundation formula alternatives for Ohio – of which the current Legislative Service Commission study is an example – would seem highly desirable. Although such research would, of necessity, consider issues beyond facilities (e.g., the current plight of the central city school districts in Ohio), it should also reflect the possibility of including facilities in some type of equal effort-equal result approach to achieving the Department of Education's equity goals, while at the same time achieving efficient utilization of the funds spent for education.

As noted previously, the Battelle recommendations for greater State leadership in the facilities field apply equally to both the short run and the long run. The need for systematic knowledge of the condition of school buildings in Ohio and for leadership in applying innovative techniques in design and construction exists no matter how construction may be financed. In addition, no matter what solution is chosen to the financing problem, some mechanism is necessary to provide for the continuous evaluation of the effectiveness of school building financing. The expanded State leadership role suggested earlier in this report can meet these needs.